

IN THE CLAIMS:

Please amend claims 1, 3 and 14 as follows:

1. (Amended) A process of replacing nucleus pulposus of an intervertebral disk, comprising:

[identifying a location of a rupture in an annulus fibrosus of an intervertebral disk;]

removing nucleus pulposus associated with [said] an annulus fibrosus of [said] an intervertebral disk; and

injecting a thermoplastic material heated to a temperature over 50 C. for flowing into said annulus fibrosus and then permitting said material to cool for setting in a non-flowing state upon reaching a temperature of between 35 C. and 42C., so as to cause said material to occupy a space formerly occupied by said removed nucleus pulposus.

12. (Amended) [The] An injection device [as defined in claim 4] for injecting thermoplastic material, the injection device comprising:

a heating element and a needle for dispensing of the thermoplastic material into an intervertebral disk [wherein the thermoplastic material comprises a geometric isomer of natural rubber].

13. (Amended) The injection device as defined in claim [4] 12, wherein said [heater] heating element heats said thermoplastic material for flowing at a temperature between about 150C and 200C.

14. (Amended) The injection device as defined in claim [4] 12, wherein said thermoplastic material comprises a linear crystalline polymer.

15. (Amended) The injection device as defined in claim [4] 12, wherein said thermoplastic material comprises a gutta percha compound in which gutta percha is between 15% and 40% by weight of the compound.

16. (Amended) The injection device as defined in claim [4] 12, wherein said injection needle is formed of a ceramic material.

17. (Amended) The injection device as defined in claim [4] 12, further comprising:

an expandable sleeve about said needle adjacent an extending end of said needle to define an annulus between said needle and said sleeve, so that pressurized fluid communicating with the annulus expands said sleeve outwardly.

19. (Amended) The injection device as defined in claim [4] 12, further comprising:

a chamber for receiving a plug of said thermoplastic material;

a piston adjacent an end of said plug for exerting a force against said plug; and

a hand operated trigger [is] operatively connected to said piston and upon actuation is effective to force said thermoplastic material from said needle when said thermoplastic material is heated to a flowing state.

20. (Amended) The injection device as defined in claim [4] 12, further comprising[:];

a chamber for receiving a plug of said thermoplastic material; and

a hand operated trigger operatively connected to said plug thermoplastic material and upon actuation is effective to force said thermoplastic material from said needle when said thermoplastic material is heated to a flowing state.

21. (Amended) The injection device as defined in claim [4] 20, [further comprising:] wherein:

[the] said chamber for receiving [the] said plug is provided in a plunger removable from an injection device body.

22. (Amended) The injection device [asa] as defined in claim [4] 12, further comprising[:];

a heater control unit having an adjustable temperature control to provide a selected temperature for said [heater] heating element.

Please add new claims 23 and 24 as follows:

23. (New) The injection device as defined in claim 12, wherein said thermoplastic material comprises a geometric isomer of natural rubber.

24. (New) A system for treating an intervertebral disk, comprising:

a thermoplastic material capable of being heated to a flowable state at a predetermined temperature above body temperature for introduction into an intervertebral disk and thereafter cooling to return to a non-flowable state; and

an injection device having a chamber for receiving said thermoplastic material, a heating element for heating said thermoplastic material to said flowable state, and a needle for injecting said flowable thermoplastic material into an intervertebral disk of a patient.